

Mystery Case: Scalpel sign

Dorsal thoracic arachnoid web

Jayaganth Jayabal,
MBCChB
Christer Nilsson, MD,
PhD
Thirayan Muthu, MCh,
FRCS
Kong K. Chung,
MBBCh, FRACP

Correspondence to
Dr. Jayabal:
jayaganth21@yahoo.co.nz

A 44-year-old man presented with 1 year of gradually progressive lower limb weakness and numbness and bowel and bladder incontinence. Neurologic examination revealed a T8 spinal sensory level and spastic paraparesis. Preoperative imaging (figure) of the thoracic spine revealed the scalpel sign, a radiologic entity diagnostic of a dorsal thoracic arachnoid web.¹ The lesion was surgically and histologically confirmed as an arachnoid web. Clinical deficits and the cord signal abnormality resolved postoperatively. Arachnoid webs are bands of arachnoid tissue extending to the pial surface, causing focal dorsal indentation of the thoracic cord. Early identification followed by surgery appears to result in good functional recovery.¹

AUTHOR CONTRIBUTIONS

Dr. Jayaganth Jayabal takes full responsibility for the data collection and participated in the writing and design of the article. Dr. Nilsson participated by providing general advice and guidance. Dr. Muthu participated in the interpretation of the images. Dr. Chung participated in the analyses and interpretation of the images and provided assistance with technical editing.

STUDY FUNDING

No targeted funding reported.

DISCLOSURE

The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

REFERENCE

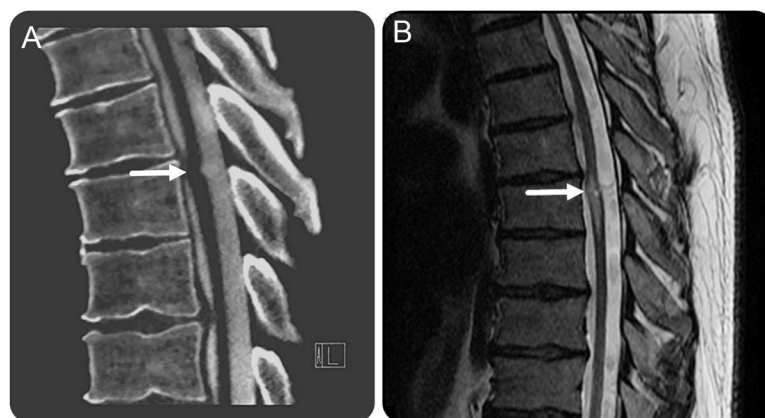
1. Reardon MA, Raghavan P, Carpenter-Bailey K, et al. Dorsal thoracic arachnoid web and the “Scalpel sign”: a distinct clinical-radiologic entity. *AJNR Am J Neuroradiol* 2013; 34:1104–1110.

MYSTERY CASE RESPONSES

The Mystery Case series was initiated by the *Neurology*[®] Resident & Fellow Section to develop the clinical reasoning skills of trainees. Residency programs, medical student preceptors, and individuals were invited to use this Mystery Case as an educational tool. Responses were solicited through a group e-mail sent to the American Academy of Neurology Consortium of Neurology Residents and Fellows and through social media.

All 7 respondents recognized the signal change in the thoracic spinal cord and the focal distortion in the shape of the cord. A total of 57% proposed a spinal cord vascular abnormality like an arteriovenous malformation or a dural arteriovenous fistula, while others suggested an intramedullary neoplasm.

Figure CT myelogram and MRI of thoracic spine



Sagittal CT myelogram of thoracic spine demonstrates the scalpel sign. The arrow shows focal indentation of the dorsal thoracic cord resembling a scalpel with blade (A). T2-weighted MRI thoracic spine demonstrates increased cord signal at T7/T8 (arrow) (B).

From Waikato Hospital (J.J., T.M., K.K.C.), University of Auckland, New Zealand; and Memory Clinic (C.N.), Skåne University Hospital, Lund University, Sweden.

Whereas these are appropriate considerations in this type of presentation, the finding of dorsal indentation in this case was due to a dorsal thoracic arachnoid web. This type of web is an extramedullary transverse band of arachnoid tissue that extends to the dorsal surface of the spinal cord, resulting in mass effect and a dorsal indentation. This indentation is called the scalpel sign because of its apparent resemblance on sagittal imaging to a scalpel with its

blade pointing posteriorly. It is worth noting that syringomyelia is often present above or below the level of cord indentation.

Aravind Ganesh, MD

Department of Clinical Neurosciences, University of Calgary, Canada; and Centre for Prevention of Stroke & Dementia, Nuffield Department of Clinical Neurosciences, University of Oxford, UK

Neurology®

Mystery Case: Scalpel sign: Dorsal thoracic arachnoid web
Jayaganth Jayabal, Christer Nilsson, Thirayan Muthu, et al.
Neurology 2015;85:e150-e151
DOI 10.1212/WNL.0000000000002140

This information is current as of November 23, 2015

Updated Information & Services	including high resolution figures, can be found at: http://n.neurology.org/content/85/21/e150.full
References	This article cites 1 articles, 1 of which you can access for free at: http://n.neurology.org/content/85/21/e150.full#ref-list-1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): All Spinal Cord http://n.neurology.org/cgi/collection/all_spinal_cord CT http://n.neurology.org/cgi/collection/ct MRI http://n.neurology.org/cgi/collection/mri
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.neurology.org/about/about_the_journal#permissions
Reprints	Information about ordering reprints can be found online: http://n.neurology.org/subscribers/advertise

Neurology® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2015 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.

